

Wet Weather Team Solution Ideas Working Draft – June 14, 2007

The following is a list of potential “solution ideas” identified by Wet Weather Team (WWT) members that will be considered in the design of the Wet Weather Program. The list will act as a “punch list” for the technical team as they consider project and program alternatives. These ideas were identified both at WWT meetings and through individual communications with WWT members (e.g., via e-mail). This list will remain “live” throughout the remainder of the WWT effort to capture ideas as they are shared. WWT members are encouraged to send additional ideas to the facilitation team for inclusion in this list.

New ideas will be listed under a “What’s New” section at the beginning of the document for easy reference, as well as under the appropriate section later in the document. After the “What’s New” list, this document is organized into three sections:

- Section I, “Project Alternatives,” is organized into five sub-categories: Stormwater Best Management Practices (Non-Structural), Stormwater Best Management Practices (Structural), CSO and SSO Point Source Controls, General/Other Solutions, and Site-Specific Solutions.
- Section II, “Funding Ideas,” is organized into three sub-categories: Cost Allocation Strategies, Financial Incentives, and Funding Sources/Options.
- Section III, “Ideas Partly or Completely Outside the Scope of MSD’s Wet Weather Consent Decree,” includes municipal government actions that are only partly within MSD’s control and MSD actions that are not related to sewer overflow issues.

What’s New (May/June 2007)

1. (I-A-6) – Address greenskeepers about best management practices (BMPs), since non-point source runoff is made worse by golf course chemicals.
2. (I-E-Beargrass) – New section for site-specific solutions for Beargrass Creek.
3. (I-E-Beargrass-1) – Restore the Middle Fork between Grinstead crossing and confluence.
 - a. Restore wetlands and improve aquatic health in the following areas:
 - i. The isolated quarry areas to the north of the interstate between Grinstead and Payne (which receives a small CSO discharge). One specific idea is to remove sediments from these areas.
 - ii. The old meander into which CSO 127 discharges and the wet meadow in its bend.
 - b. Work with the City of Louisville, the Parks, and the private sector to turn this area into a greenway that connects the waterfront with Cherokee and Seneca Parks, and eventually with parks in Saint Matthews, with a bikeway from Saint Matthews to downtown.
 - c. Close CSOs in this area using projects that reduce flooding and improve water quality.
4. (I-E-Beargrass-2) – Restore the South Fork between I-264 and Eastern Parkway.
 - a. Restore the stream channel, along with the wet meadows and woods in the floodplain.
 - b. Coordinate with landowners (e.g., the City of Louisville and Bellarmine College) on the restoration of the stream segment, which is part of a “nature education” corridor and is subject to MSD conservation easements.
 - c. Potentially make this area into a bikeway as part of the solution.
5. (I-E-Beargrass-3) – Restore Eva Bandman Park.
 - a. Convert the park into restored wetlands with a boardwalk for visitors.

- b. Include the park as part of the solution for the CSOs that discharge at the confluence by having it receive their stormwater.

I. Project Alternatives

A. Stormwater Best Management Practices (Non-Structural)

1. Influence behavior of residential and commercial landowners through education.
 - a. Promote water conservation practices: rain gardens, rain barrels, and responsible alternatives for sump pumps and downspout connections.
 - b. Encourage stewardship: removing invasive vegetation from riparian zones, planting wetlands, litter cleanups, etc.
2. Regularly distribute billing inserts (like LG&E's) to MSD customers with facts and tips to encourage certain behaviors (e.g., lawn chemical management, pet waste management, landscaping practices).
3. Conduct a baseline survey and follow-up surveys of residents to determine whether education and outreach efforts are effective in changing behavior and perceptions on issues related to the Wet Weather Program
4. Hold "CSO Action Days" during or right after a hard rain to promote behavior change (e.g., don't use your dishwasher, wait to drain your bathtub, etc.).
5. Develop a pledge for customers that clearly lays out behaviors that will help MSD meet Consent Decree requirements. For an example, see <http://www.watershedpledge.org> (see also II-B-4).
6. Address greenskeepers about best management practices (BMPs), since non-point source runoff is made worse by golf course chemicals.

B. Stormwater Best Management Practices (Structural, including "Green" Infrastructure Solutions)

1. Use landscaped areas to control stormwater runoff.
2. Encourage homeowners to construct rain gardens and use rain barrels.
3. Install French drains along roads to accept stormwater runoff (see also detailed suggestions listed for Beechwood Village below).
4. Develop specific design parameters or standards for stormwater best management practices and low impact development techniques and include these in an MSD Design Manual. The Design Manual should provide guidance for approaches including, but not limited to, the following:
 - a. Pervious pavement
 - b. Level spreaders
 - c. Riparian buffers
 - d. Vegetated swales
 - e. Wet ponds
 - f. Wet ponds with forebays (small basins that settle out incoming sediment before it is delivered to a stormwater BMP)¹
 - g. Wetlands

¹ Adapted from Pennsylvania Department of Environmental Protection, *Pennsylvania Stormwater Best Management Practices Manual*, http://www.dep.state.pa.us/dep/deputate/watermgmt/wc/Subjects/StormwaterManagement/BMP%20Manual/14_Glossary_Final_Draft.pdf

5. Consider incorporating aspects of the LEED green building standards into MSD design manuals for structural BMPs.
6. Ensure that urban CSO areas have at least a 30 percent tree canopy.

C. CSO and SSO Point Source Controls

1. Disconnect downspouts and/or sump pumps (e.g., by developing educational initiatives aimed at landowners).
2. Increase enforcement and inspections of downspout and sump pump connections.

D. General/Other Solutions

1. Leverage and coordinate the Wet Weather Program efforts with MSD's MS4 stormwater management permitting responsibilities.

E. Site-Specific Solutions (Considered in Addition to the Solutions Listed Above)

Beechwood Village

1. Construct a park-like wet detention area in the wooded area of St. Matthews Park.
2. Install new sanitary lines and laterals to homes, and pumps for basement facilities when requested by the homeowner.
3. Install French drains on either side of roadways to accept stormwater runoff. The drains would be continuous trenches filled with gravel and covered by turf. The drains could also accept discharges from sump pumps and downspouts.
4. Install perforated pipe in the French drains so they can discharge more freely when they flood. The piped drain system would need to be a combination of gravity and pump depending on the topography and discharge point(s).
5. If a solid pipe system is used, the system could discharge to constructed wetlands designed to treat stormwater. Possible sites for constructed wetlands are the forest north of the Community Park and the detention pond for the bank on Shelbyville Road at the Beechwood Village entrance.
6. Restore natural stream banks for the Sinking Fork north of Shelbyville Road where the big pump now sits.

Beargrass Creek

1. Restore the Middle Fork between Grinstead crossing and confluence.
 - a. Restore wetlands and improve aquatic health in the following areas:
 - i. The isolated quarry areas to the north of the interstate between Grinstead and Payne (which receives a small CSO discharge). One specific idea is to remove sediments from these areas.
 - ii. The old meander into which CSO 127 discharges and the wet meadow in its bend.
 - b. Work with the City of Louisville, the Parks, and the private sector to turn this area into a greenway that connects the waterfront with Cherokee and Seneca Parks, and eventually with parks in Saint Matthews, with a bikeway from Saint Matthews to downtown.
 - c. Close CSOs in this area using projects that reduce flooding and improve water quality.

2. Restore the South Fork between I-264 and Eastern Parkway.
 - a. Restore the stream channel, along with the wet meadows and woods in the floodplain.
 - b. Coordinate with landowners (e.g., the City of Louisville and Bellarmine College) on the restoration of the stream segment, which is part of a “nature education” corridor and is subject to MSD conservation easements.
 - c. Potentially make this area into a bikeway as part of the solution.
3. Restore Eva Bandman Park.
 - a. Convert the park into restored wetlands with a boardwalk for visitors.
 - b. Include the park as part of the solution for the CSOs that discharge at the confluence by having it receive their stormwater.

II. Funding Ideas

A. Cost Allocation Strategies

1. Equitably assign costs (focus areas for the financial equity value):
 - a. Consider the burden on fixed income and low-income populations
 - b. Rates and fees that are linked to the cost to serve (i.e., the level of impact)
2. Charge residences differently depending on the area of impervious surfaces on properties (and therefore the amount of stormwater runoff that would be generated).
3. Require lower development fees for areas that already have sewer capacity (e.g., urban areas in need of re-investment).
4. Bill based on increased water usage—the more you use, the higher the rate.

B. Financial Incentives

1. Provide incentives for “preferred” behaviors.
2. Offer incentives for developers to use cost-effective, eco-friendly solutions (e.g., low impact development techniques, stormwater best management practices).
3. Charge reduced wastewater rates to property owners that use eco-friendly techniques to reduce stormwater runoff.
4. Reduce fees for families or businesses who sign a pledge that clearly lays out behaviors that will help MSD meet Consent Decree requirements (see also I-A-5).
 - a. In critical CSO neighborhoods, provide free rain barrels to people who sign the pledge.

C. Funding Sources/Options

1. Consider using volunteers to reduce costs.
2. Consider solutions that could meet the objectives of multiple agencies (e.g., water quality and flood control improvements) and therefore could potentially receive funding from multiple sources.

III. Ideas Partly or Completely Outside the Scope of MSD's Wet Weather Consent Decree

A. Municipal Government Actions (Only Partly within MSD's Control)

1. Improve the development review process for new subdivisions. Deny permits for subdivisions or any new homes if the plant in the area is above capacity.
2. Encourage local government agencies (e.g., Jefferson County Public Schools, Metro Parks) to adopt preventative practices to decrease stormwater runoff and wastewater volumes (e.g., low-flow toilets, pervious pavement, additional tree coverage, etc.).
3. Develop a “comprehensive solution” for local environmental improvement and education efforts.
 - a. Fund and staff a collaborative planning effort to link the environmental education programs of multiple local agencies (MSD, Louisville Water Company, Metro government departments, Mayor’s Office, TARC, etc.) together, develop specific goals and assessment systems, and then hold agencies accountable to those goals.

B. MSD Actions Not Related to Sewer Overflow Issues

1. Purchase properties within the floodplain.
 - a. Buy land that is flooded on a regular basis and turn it into parks.
 - b. When building a detention basin, buy properties in the floodplain that are most impacted.
2. Improve implementation and enforcement of the Sediment Control Act.